

WHAT IS CLAIMED IS:

1. The present invention is a structural reinforcement part for use in automobile applications, comprising:

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1) a molded shell, having a set shape and size, comprising a polymer wall having an interior and an exterior face, wherein said interior face defines a space within the molded shell;

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2) a structural filler material disposed in and substantially filling said space within the molded shell, and

3) a heat-activated expandable adhesive in contact with the exterior face of the polymer wall;

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wherein the structural filler material does not undergo or require any chemical reaction or expansion, after part installation or during automotive assembly.

2. The structural reinforcement part of Claim 1, wherein the molded shell is produced from a polyamide, a polyolefin, a syndiotactic vinyl aromatic polymer, or a blend thereof.

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3. The structural reinforcement part of Claim 2, wherein the molded shell is produced from a polyamide.

4. The structural reinforcement part of Claim 1, wherein the structural filler material is a polyurethane or aluminum foam.

5. The structural reinforcement part of Claim 4, wherein the structural filler material is polyurethane foam.

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6. The structural reinforcement part of Claim 1, wherein the expandable adhesive is an expandable epoxy, polyolefin or thermoplastic polyurethane.

7. A method for producing the structural reinforcement part for automotive assembly of Claim 1 comprising:

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1) forming a molded shell, having a set shape and size, comprising a polymer wall having an interior and an exterior face, wherein said interior face defines a cavity within the molded shell;

- 2) injecting into said cavity a structural filler material or components thereof such that the cavity is substantially filled, and
- 3) contacting an expandable adhesive with the exterior face of the polymeric wall;

5 wherein the structural filler material does not undergo or require any chemical reaction or expansion, after part installation or during automotive assembly.

8. The method of Claim 7 wherein the molded shell is blow molded, rotational molded or injection molded.

9. The method of Claim 7 wherein the expandable adhesive is coated
10 onto the exterior face of the polymer wall.

10. The method of Claim 7 wherein the expandable adhesive is preformed or cut and adhered to the exterior face of the polymer wall.